

~~29~~38. (Twice Amended) An electrical device comprising a tank for holding a dielectric fluid wherein said fluid consists essentially of one or more vegetable oils that are free of chlorinated compounds, wherein said vegetable oils have a viscosity between about 2 and about 15 cSt at 100°C, and less than about 110 cSt at 40°C, and wherein the dielectric fluid is food grade.

~~21~~39. (Amended) A method of using an electrical device comprising employing in said device a food grade dielectric fluid [comprising] consisting essentially of at least one vegetable oil, wherein said vegetable oil is substantially free of chlorinated compounds.

~~32~~40. (Amended) A [device capable of generating or distributing electrical energy, wherein the device has] transformer having incorporated therein a food grade dielectric fluid [comprising] consisting essentially of one or more vegetable oils that are free of chlorinated compounds.

~~41~~41. (Amended) A method for retrofitting an electrical device, comprising:
(a) removing an existing dielectric fluid from the device;
(b) drying the device; and
(c) replacing the existing dielectric fluid with a food grade dielectric fluid consisting essentially of one or more vegetable oils that are free of chlorinated compounds, wherein said vegetable oils have a viscosity between about 2 and about 15 cSt at 100°C, and less than about 110 cSt at 40°C.

REMARKS

Claims 15-34 and 38-41 are pending in the application. In this response, claims 15, 31 and 38-41 are amended, and claim 21 is canceled.

Claims 15, 31, 38 and 41 are amended to specify that the dielectric fluid is food grade. This amendment is supported in the specification, for example, on page 8, lines 5-7.

Claim 39 is amended to specify that the dielectric fluid consists of at least one vegetable oil, and claim 40 is amended to specify that the electrical device is a transformer.

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Applicants respectfully submit that these amendments obviate the rejections set forth in the Office Action of July 25, 2000, and do not raise the issue of new matter. These amendments are made in response to the Examiner's arguments in the Office Action of July 25, 2000, and will not require a new search. Applicants respectfully submit that these amendments remove issues for appeal and place this application in condition for allowance. For at least these reasons, entry of these amendments into the record is respectfully requested.

In view of the above amendments and the following remarks, Applicants request further examination of this application and reconsideration of the rejections set forth in the Office Action dated July 25, 2000.

I. Rejections under 35 U.S.C. § 102

1. Paragraph 1

In paragraph 1, page 2, claims 15-23, 26, 28-29, 31 and 38 are rejected under 35 U.S.C. § 102(b) as anticipated by Japanese patent 61-260,503. The Examiner contends that the polymeric additives described in the JP '503 are not precluded by the transitional phrase consisting essentially of because the additive is not deleterious to the claimed composition, absent showing to the contrary. This rejection is respectfully traversed for the reasons that follow.

As noted on page 4 of the specification, the invention provides a dielectric fluid that: (1) poses minimal environmental hazards; (2) degrades quickly and easily so that spills do not contaminate the soil or water table for any significant period of time; and (3) does not interfere in any significant way with natural biodegradation processes. Pages 7-8 of the specification state that the dielectric fluid composition, which consists essentially of a vegetable oil or a mixture of vegetable oils, is preferably a food grade material that does not include any components that pose an environmental hazard. In this response, the claims are amended to clarify that the dielectric fluid composition is a food grade material.

As noted on page 7 of the specification, if the dielectric fluid includes non-vegetable oil components, the amount and/or character of the non-vegetable oil component must be carefully selected to preserve the environmentally safe nature of the fluid. For this reason, any synthetic components that are toxic and/or would not be expected to naturally degrade in a reasonable



amount of time would adversely affect the environmentally safe nature of the dielectric fluid composition, and would not be useful as components for the composition.

The cited JP '503 abstract describes a dielectric composition that includes a vegetable oil and an alkylmethacrylate polymer at a concentration of up to 5% by weight. Since alkylmethacrylates are known to be volatile, synthetic compounds, in a dielectric fluid they would be expected to degrade slowly if the fluid was released into the environment. For this reason, alkylmethacrylates are not suitable for use in the presently claimed food grade dielectric fluid, and would be expected to be deleterious to the performance of the fluid, particularly its biodegradability. Therefore, Applicants respectfully submit that introduction of alkylmethacrylates would materially change the characteristics of the presently claimed dielectric fluid composition. For this reason, the alkylmethacrylates are excluded by the recitation of consisting essentially of in the present claims, as well as by the characterization of the dielectric fluid of the composition as a food grade material.

For the reasons cited above and in the previous response, Applicants respectfully submit that the presently claimed invention is neither anticipated under 35 U.S.C. § 102(b) nor obvious under 35 U.S.C. § 103(a) over the JP '503 abstract. Reconsideration and withdrawal of this rejection are respectfully requested.

2. Paragraph 2

On page 3 of the Office Action, claims 15-23, 28-31 and 38-41 are rejected under 35 U.S.C. § 102(b) as anticipated by Maier and de Sio. The Examiner contends that the claims do not distinguish the cited references because the dielectric fluid composition is not specified to be substantially free of chlorinated compounds. For this reason, it is argued that the halogenated hydrocarbons disclosed in the cited reference would not appear to affect the basic and novel characteristics of the claimed composition. The Examiner also takes the position that Applicants have not established that castor oil has a viscosity outside the range recited in the claims and unsuited for use in electrical applications. These rejections are respectfully traversed for the reasons that follow.

The claims as amended specify that the dielectric composition is a food grade material. The term food grade material is defined on page 8 of the specification as a material that does not



include toxic or biologically hazardous compounds. It is well known that halogenated hydrocarbons are not environmentally compatible, and inclusion of these compounds in the dielectric fluid of the invention would be expected to significantly change its food grade character. In addition, as noted on pages 7-8 of the specification, inclusion of any significant amount of a chlorinated fluid will negate many of the positive environmental attributes of the presently claimed dielectric composition.

With respect to the viscosity of castor oil, Applicants enclose information from the CRC Handbook of Chemistry and Physics, 59th edition, 1978-79, which states that castor oil has an absolute viscosity of about 231 cp at 40 °C and 16.9 cp at 100 °C. Since castor oil has a density of about 0.97 grams per cm³, this material would have a kinematic viscosity of about 238 cSt at 40 °C and about 17.4 cSt at 100 °C, which are clearly outside the ranges in the present claims.

For the reasons cited above and in the previous response, Applicants respectfully submit that the presently claimed invention is neither anticipated under 35 U.S.C. § 102(b) nor obvious under 35 U.S.C. § 103(a) over either of Maier and de Sio. Reconsideration and withdrawal of this rejection are respectfully requested.

3. Paragraph 4

In paragraph 4 of the Office Action, claims 15-23, 28-31 and 38-41 are rejected under 35 U.S.C. § 102(b) as anticipated by the Clark publication, "Insulating Material for Design and Engineering Practice." The Examiner points out that page 132 of Clark discloses vegetable oil insulating liquids for use in transformers, cables, capacitors, switches and circuit breakers. This rejection is respectfully traversed for the reasons that follow.

Page 132 of the Clark reference mentions vegetable oils as insulating liquids that may be used in electrical applications. Page 210 of Clark states that castor oil has been used as an insulating and cooling liquid in transformers. However, Clark teaches that the other vegetable oils have been used in electrical applications as plasticizers in synthetic resin compositions for coating electrical equipment. Page 211 of Clark states that vegetable oils with three double bonds tend to oxidize, which limits their use as a dielectric or cooling impregnant.

Clark teaches that castor oil would be useful as a dielectric coolant, but, as noted above, castor oil has a viscosity outside the ranges of the present claims. Moreover, this reference



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III. Conclusion

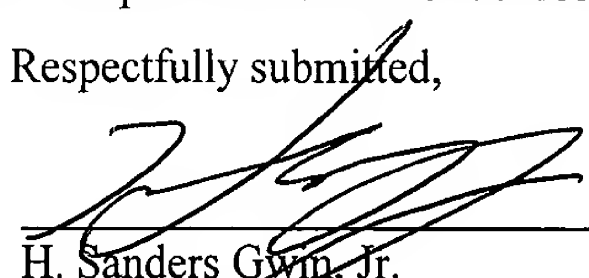
Applicants respectfully request reconsideration and prompt allowance of the pending claims.

If questions remain regarding the above response, or if a telephone conference would be helpful in resolving any outstanding issues, please contact the undersigned.

Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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